Your Seattle City Light

Memorandum

Riley
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DATE : November 16, 1979

TO : Steve Fletcher

FROM : Pete Henault

SUBJECT : PCB Hazards and Regulations

With regard to the above matter and your request of November 2 for a summary report (1 - 3 pages), we have prepared the attached "PCB Hazards and Regulations: A Summary Report" for your perusal. This report should provide the information you require, however, if you have any comments or questions, please feel free to contact Mary Savela of my office (X3705).

PH:js
Attachment

cc: Recchi, Peha/Jackson, Sickler, Rockey, Hunich, Mandapat, Young, Henault, Riley, Savela, OEA (3), File

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PCB HAZARDS AND REGULATIONS:

A SUMMARY REPORT

Introduction

Polychlorinated biphenyls (PCBs) are toxic chemical compounds that are particularly harmful to human health and the environment because when they are released into the environment they do not break apart into new chemical arrangements. They accumulate biologically in organisms throughout the environment. This property of PCBs is particularly dangerous in the food chain; PCBs accumulate in the tissues of living organisms and as they move up the food chain toward man the concentration increases. PCBs have been shown to cause long-term toxic effects in many species even when exposed to very low concentrations of these chemicals.

Health and Safety Hazards

Human exposure to PCBs can occur through eating contaminated food, occupational exposure, exposure to contaminated soil or water, and transmission from mother to child by breast feeding. Well-documented cases of toxic effects of PCBs on humans are limited to industrial accidents involving workers directly responsible for PCB production, excessive exposure to manufactured products containing PCBs, and consumption of food contaminated with PCBs during processing. There are well-documented tests which show that PCBs cause skin lesions, gastric disorders, reproductive failures, and lung and eye irritation. PCBs also have caused tumors in laboratory animals.

Studies of workers exposed to PCBs have shown a number of symptoms including abnormal fatigue, abdominal pain, jaundice, impotence, severe headaches, numbness of limbs, swelling of joints, chronic cough, menstral irregularity, abnormal tooth development, skin hyperpigmentation, and low weight in newborn children.

A recent (1979) report on PCBs prepared by the National Research Council comments on the difficulty of evaluating the effects of PCBs on the general population:

> "Even though a large percentage of the human population has been exposed to varying amounts of PCBs, primarily through the food chain (i.e., contaminated fish, livestock, vegetation, and human milk), no well-documented cases of health problems associated with such environmental exposures exist. Thus, a detailed evaluation of the effects on human health in the general population is not currently available, although there are indications that even limited exposure to PCBs may produce injurious effects that will be difficult to detect even with close scrutiny."

Regulations

Federal regulations issued by the Environmental Protection Agency (EPA) govern the use, manufacturing, processing and distribution in commerce of PCBs. The regulations that affect City Light the most are those governing the use, repair, storage, and disposal of transformers and capacitors. Briefly summarized, these regulations are as follows:

1. Use and Marking: Capacitors and transformers containing PCBs no longer may be manufactured, but those already in service may continue to be used as long as they are in good operating condition and do not leak. Accidental spills of dielectic fluid containing PCBs must be cleaned up according to procedures detailed in the EPA regulations. Present City Light procedures (Appendix H of the Emergency Operations Procedures manual) require some updating to reflect stricter standards that became effective July 2, 1979.

   Large capacitors must be assumed to contain PCBs unless the label or nameplate says the capacitor is free of PCBs. All large capacitors containing PCBs must be so labeled.

   Transformers (other than railroad transformers) fall into three categories: (1) PCB transformers that contain more than 500 ppm of PCBs, (2) PCB contaminated transformers containing between 50 and 500 ppm of PCBs, and (3) non-PCB transformers containing less than 50 ppm of PCBs. PCB transformers must be so marked, but PCB contaminated and non-PCB transformers do not require labels.

2. Repair: Routine servicing (i.e., testing the dielectric fluid, filtering the fluid, removal of some fluid and then returning or replacing it, replacing gaskets) is allowed for all three categories of transformers. However, any servicing (including rebuilding) of PCB transformers that involves removing the coils from the casing is prohibited. PCB contaminated and non-PCB transformers may be rebuilt.

3. Storage: Non-leaking capacitors and transformers may be stored in storage facilities that conform to all EPA regulations.

4. Disposal: PCB transformers can be disposed of in one of two ways: (1) the transformer and the dielectric fluid can be burned together in a high temperature incinerator approved by EPA; or (2) the liquid can be drained from the transformer, the transformer flushed with solvent for 18 hours, the solvent and the dielectric fluid burned in an EPA approved high temperature incinerator, and the drained and resealed transformer disposed of in a chemical landfill approved by EPA.

   PCB contaminated transformers and dielectric fluid can be burned in an EPA approved high temperature incinerator, or the transformer can be drained and the liquid burned in a high temperature incinerator, disposed of in an EPA approved chemical landfill, or burned

in a "high efficiency boiler". A high efficiency boiler is defined as a power generation or industrial boiler that operates at a high combustion efficiency (99.9%) as defined by the carbon monoxide concentrations and excess oxygen percentages in the combustion emissions. The drained transformer can be disposed of as scrap or in a municipal solid waste disposal facility.

Non-PCB transformers can be drained and disposed of as scrap or in a municipal solid waste disposal facility. The only restriction on disposal of the dielectric fluid is that it cannot be used as a sealant, coating, or dust control agent if it contains any detectable PCBs.

Large PCB capacitors can be disposed of in EPA approved chemical waste landfills or high temperature incinerators. After Jan. 1, 1980, they must be disposed of by incineration.

One severe problem associated with PCB disposal is the total lack of EPA approved high temperature incinerators. This lack may cause revision in the present EPA rules.

Amendments to the Clean Water Act

In addition to the above regulations, some recent (September 28, 1979) EPA regulations implementing the Clean Water Act require that spills of ten or more pounds of PCBs into any U. S. surface waters be reported to federal authorities and cleaned up immediately. Penalties of up to $250,000 can be imposed upon the perpetrator of such spills, depending on the circumstances.

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cc: Fletcher, Recchi, Peha/Jackson, Sickler, Rockey, Hunich, Mandapat, Young, Henault, Riley, Savela, OEA (3), File